Version with Markings to Show Changes Made

FUEL INJECTION DEVICE

Field of the Invention

[0001] The present invention relates to an operation control method in a fuel injection device that injects and supplies a fuel to an internal combustion engine, and to the fuel injection device. ~~;~~ More~~more~~ particularly, it relates to those devices and methods in which enhancement in control stability and so on are realized.

Description of the Related Art

[0002] In recent years, as one type of a fuel injection device that injects and supplies a fuel to an internal combustion machine such as an engine, proposed are various fuel injection devices called common-rail fuel injection devices that are configured so~~so configured~~ that a high-pressure fuel is temporarily stored in a fuel passage called a common rail. ~~; and~~ Thereafter~~thereafter~~, a plurality of injection nozzles connected to this common rail, each having a solenoid valve, are controlled to~~,~~ thereby enable~~enabling~~ concurrent injection. These devices~~, and they~~ are now well known in the art (for example, refer to Japanese Patent Laid-open No. Hei 10-54318).

[0003] In such a common-rail fuel injection device, whether or not an injection characteristic is good greatly depends on stability and reliability in controlling the pressure in the common rail, namely, the common-rail pressure, at a target pressure. This common-rail pressure control is roughly classified, in terms of the positions where the control is performed, into a high-pressure side control, in which pressure control is performed on a high-pressure side~~,~~ (in other words, on a downstream side of a high-pressure pump for pressure-sending a fuel to the common rail so as to cause the common rail pressure to be a desired pressure), and a low-pressure control, in which common-rail pressure control is performed on an upstream side of the high-pressure pump. Each class of control~~, and each~~ has its own merits and demerits, and although~~though~~ various control methods and control devices